

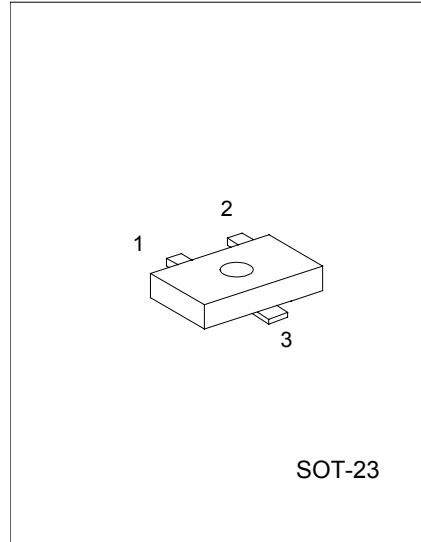
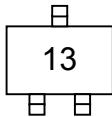
# UTC MMBT9013 NPN EPITAXIAL SILICON TRANSISTOR

1W OUTPUT AMPLIFIER OF  
POTABLE RADIOS IN CLASS B  
PUSH-PULL OPERATION

## FEATURES

- \*High total power dissipation. (625mW)
- \*High collector current. (500mA)
- \*Excellent hFE linearity.
- \*Complementary to UTC MMBT9012

## MARKING



1: EMITTER 2: BASE 3: COLLECTOR

\*Pb-free plating product number: MMBT9013L

## ABSOLUTE MAXIMUM RATINGS (Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATING	UNIT
Collector-base voltage	V <sub>CB0</sub>	40	V
Collector-emitter voltage	V <sub>CEO</sub>	20	V
Emitter-base voltage	V <sub>EB0</sub>	5	V
Collector current	I <sub>c</sub>	500	mA
Collector dissipation	P <sub>c</sub>	225	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>STG</sub>	-55 ~ +150	°C

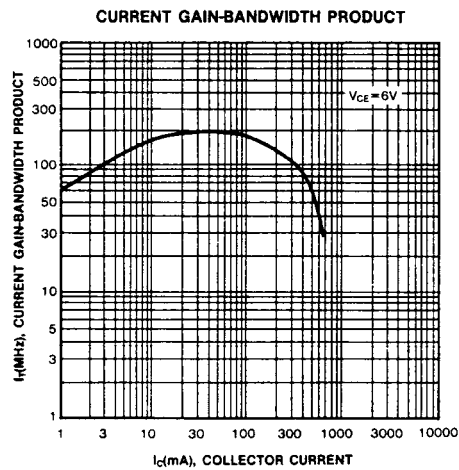
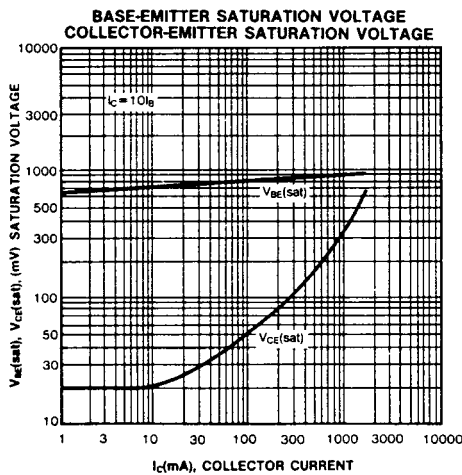
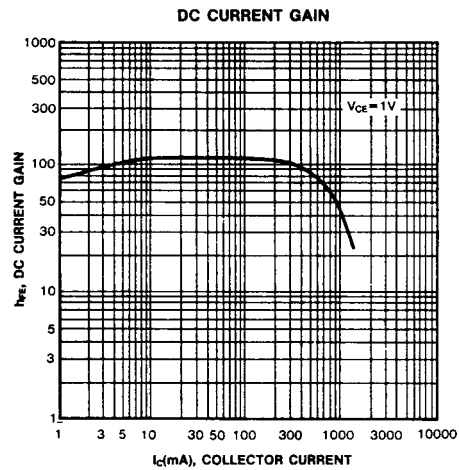
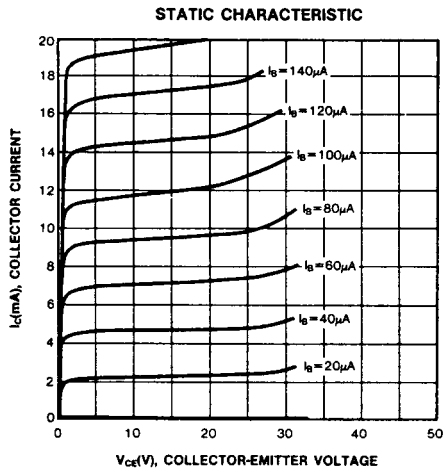
## ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	BV <sub>CB0</sub>	I <sub>c</sub> =100μA, I <sub>E</sub> =0	40			V
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	I <sub>c</sub> =1mA, I <sub>B</sub> =0	20			V
Emitter-base breakdown voltage	BV <sub>EB0</sub>	I <sub>E</sub> =100μA, I <sub>c</sub> =0	5			V
Collector cutoff current	I <sub>CB0</sub>	V <sub>CB</sub> =25V, I <sub>E</sub> =0			100	nA
Emitter cutoff current	I <sub>EB0</sub>	V <sub>EB</sub> =3V, I <sub>c</sub> =0			100	nA
DC current gain	hFE1	V <sub>CE</sub> =1V, I <sub>c</sub> =50mA	64	120	300	
	hFE2	V <sub>CE</sub> =1V, I <sub>c</sub> =500mA	40	120		
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>c</sub> =500mA, I <sub>B</sub> =50mA		0.16	0.6	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>c</sub> =500mA, I <sub>B</sub> =50mA		0.91	1.2	V
Base-emitter on voltage	V <sub>BE(on)</sub>	V <sub>CE</sub> =1V, I <sub>c</sub> =10mA	0.6	0.67	0.7	V

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## CLASSIFICATION OF hFE1

RANK	D	E	F	G	H	I
RANGE	64-91	78-112	96-135	112-166	144-202	190-300



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